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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Michael D. Pashley

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS

P.O. BOX 3001

BRIARCLIFF MANOR, NY 10510

EXAMINER

LOVELL, LEAH S

ART UNIT

PAPER NUMBER

2875

DATE MAILED: 11/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/539,974	PASHLEY, MICHAEL D.	
	Examiner	Art Unit	
	Leah S. Lovell	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>19 June 2005</u> . | 6) <input checked="" type="checkbox"/> Other: <u>See Continuation Sheet</u> . |

Continuation of Attachment(s) 6). Other: Dictionary.com definition of "solid".

DETAILED ACTION

Drawings

1. The drawings are objected to because:
 - In figure 1, the top light source arrangement lacks a reference numeral/lead line to the reflective polarizer.
 - The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 113 (quarter-wave plate).
2. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The abstract of the disclosure is objected to because the abstract should be resubmitted on a new page without all the WO information. Correction is required. See MPEP § 608.01(b).
4. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
 - (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
 - (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
 - (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
 - (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
 - (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
 - (g) BRIEF SUMMARY OF THE INVENTION.
 - (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
 - (i) DETAILED DESCRIPTION OF THE INVENTION.
 - (j) CLAIM OR CLAIMS (commencing on a separate sheet).
 - (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
 - (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).
5. The disclosure is objected to because of the following informalities:
 - On page 5, line 1—"(QWP)" should be added after "the quarter-wave plate."

- On page 5, line 14—"quarter-wave plate" should be added before "QWP" for consistency with the other references to the QWP.
- On page 5, line 14 and page 6, lines 28 and 30—reference numeral 113 is found, but cannot be found in figure 1.
- On page, 8 line 13—the examiner believes "101, 102, 103" should be replaced with "201, 202, 203" to refer to the second figure instead of the first. Appropriate correction is required.

Information Disclosure Statement

6. The information disclosure statement filed 19 June 2005 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to as non-patent literature therein has not been considered—the US patent document cited has been considered. The foreign documents were only considered because the Examiner was easily able to find the documents and were all printed in English.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3, 6-9, 11, 14-16, 18-20, 22 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Knox (US 6,390,626).

In regard to claim 1, Knox discloses an optical system, comprising:

at least one light source [12], which emits light substantially of a particular wavelength range in a substantially randomly polarized or unpolarized state;

at least one reflective polarizer [21] coupled to the at least one light source; and

at least one element [15, 17, 18] that redirects a portion of the light reflected by the reflective polarizer through the at least one light source and back to the at least one reflective polarizer,

wherein there is substantially no optical distance between the at least one light source and the at least one element [figure 1].

Regarding claim 2, Knox discloses the at least one light source is disposed in the element [figure 1].

In regard to claim 3, Knox discloses at least one light source being encased in a material of the element [15, 18 encase the light source].

In regard to claim 6, Knox discloses the at least one reflective polarizer is disposed over a surface of the at least one element [21 is positioned over 18].

In regard to claim 7, Knox discloses the at least one element [15] being a compound parabolic concentrator [column 7, lines 3-9].

Regarding claim 8, Knox discloses a wavelength combiner [230] disposed adjacent to the at least one optical element [figure 12].

In regard to claim 9, Knox discloses an integrating rod that is optically coupled to a liquid crystal display system [abstract].

In regard to claim 11, Knox discloses the wavelength combiner being chosen from the group consisting essentially of: a dichroic cube; a plurality of dichroic cubes; and dichroic elements [column 8, lines 45-58].

Regarding claim 14, Knox discloses a plurality of the elements that redirect light, each of which includes: at least one of the at least one light sources; and one of the at least one reflective polarizer [figures 1, 7, and 12].

In regard to claim 15, Knox discloses a method of recycling light to improve efficiency of an optical system, the method comprising:

providing at least one reflective polarizer [21] and at least one source [12] of unpolarized or randomly polarized light, where one of the reflective polarizers are coupled to each of the sources of unpolarized or randomly polarized light [figure 1];

redirecting a portion of light reflected from the reflective polarizer through the light source and back to the reflective polarizer, which transmits light of a particular polarization state and reflects the remaining light to the element, wherein there is substantially no optical distance between the reflective polarizer and the element [column 7, lines 28-33].

Since Knox discloses all the required parts, Knox inherently discloses the method to combine them.

Regarding claim 16, Knox discloses polarizing at least a portion of the reflected light to the particular polarization state [column 7, lines 28-33].

Regarding claim 18, Knox discloses polarizing directing the light of the particular polarization state to a liquid crystal device [abstract].

In regard to claim 19, Knox discloses an optical package, comprising at least one light emitting element [12], which is disposed in an optical element [15, 17, 18], which redirects light reflected from one end [21] of the element back through the light emitting device and out from the one end [figure 3].

Regarding claim 20, Knox discloses the light-emitting element [12] emits randomly polarized light or unpolarized light of over a substantially finite wavelength range [any light source emits unpolarized light unless it has a polarized coating].

Regarding claim 22, Knox discloses the light-emitting element is encased in the optical element [15, 18 encase the light source].

In regard to claim 23, Knox discloses the optical element is a compound parabolic combiner [column 7, lines 3-9].

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 4, 12, 13, 17 and 21 rejected under 35 U.S.C. 103(a) as being unpatentable over Knox (US 6,390,626).

Regarding claim 4, Knox discloses the at least one element being substantially solid, wherein "solid" is defined as a substance exhibiting rigidity (Dictionary.com, definition 28).

Regarding claims 12, 13 and 21, Knox does not disclose the at least one light source being an array of light emitting diodes; however, it is well known in the art that LEDs are a suitable replacement for the types of lamps disclosed in Knox. One would be motivated to do so because it is also well known in the art that LEDs have a longer life and they consume less power than traditional light sources. One would be motivated to use an array of LEDs to provide a brighter light source or a single LED for a subtle, dimmer light source.

In regard to claim 17, Knox discloses the claimed invention except combining light from at least two of the sources of unpolarized or randomly polarized light. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize multiple light sources, since it has been held that mere duplication of the essential working parts of a device requires only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

11. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knox (US 6,390,626) as applied to claim 1, and further in view of Masuda et al. (US 6,078,363).

Regarding claim 5, Knox does not disclose a quarter-wave plate. However, Masuda discloses a quarter wave plate [5] disposed between the at least one reflective polarizer [8i] and the at least one element [3]. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a quarter-wave plate between the reflective polarizer and the element as shown in figure 1 of Masuda to the lighting system of Knox. One would be motivated to do so because the quarter-wave plate because the quarter-wave plate converts random light into linearly polarized light which would allow for more light to be transmitted on its first contact with the reflective polarizer.

Regarding claim 10, Knox discloses another portion of the light reflected by the at least one reflective polarizer being reflected back to the at least one reflective polarizer by the element [column 7, lines 28-34].

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Budd et al. (US 6,064,523)
- Bruzzone et al. (US 6,486,997)


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leah S. Lovell whose telephone number is (571) 272-2719. The examiner can normally be reached on Monday through Friday 7:45 a.m. until 4:15 p.m.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Renee Luebke can be reached on (571) 272-2009. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leah Lovell
Examiner
8 November 2006



ALAN CARIASO
PRIMARY EXAMINER